

# MANAGED AQUIFER RECHARGE TRIAL



TE KAUNIHERA Ā-ROHE O TE MATAU-A-MĀUI

# Agenda

- What is the Regional Water Security Programme
- What challenges are we facing in CHB
- What is a Managed Aquifer Recharge pilot
- Risks and Opportunities



## Regional Water Security Programme

“Hawke’s Bay has long term, climate-resistant & secure supplies of freshwater, for all”

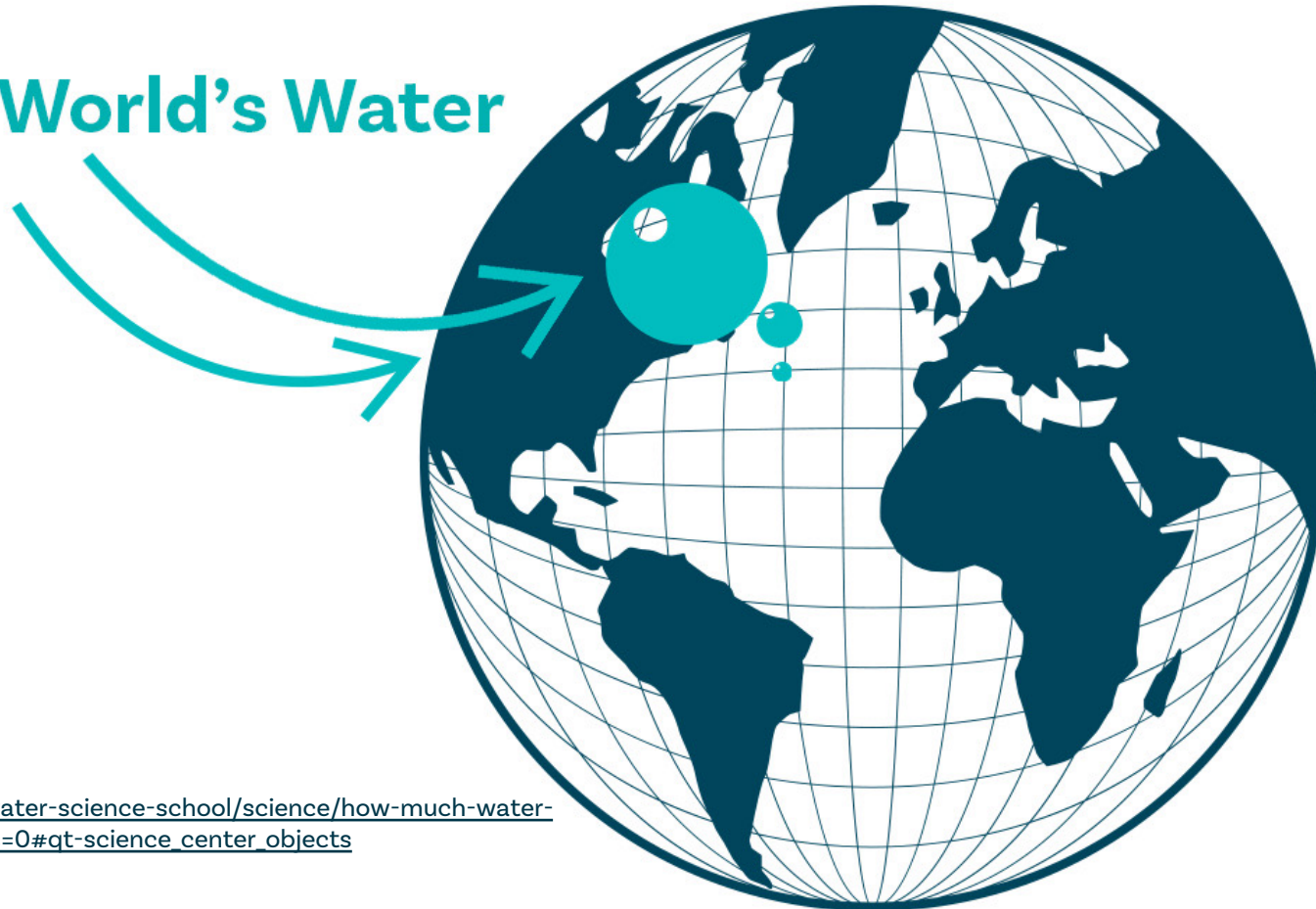


## Regional Water Security Programme

“Hawke’s Bay has long term, climate-resistant & secure supplies of freshwater, *for all*”

# Freshwater is a taonga

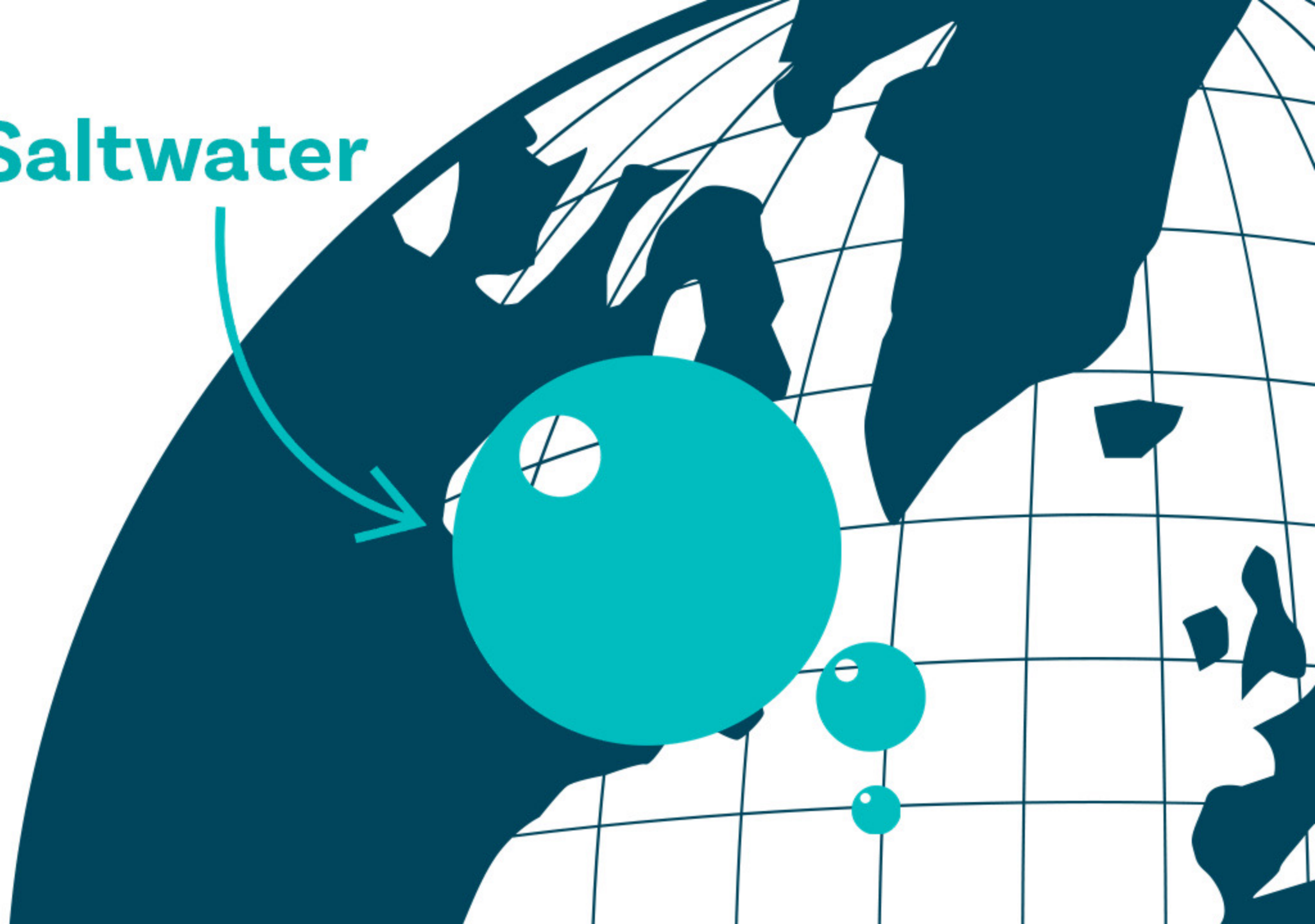
## The World's Water



**Reference:**

[https://www.usgs.gov/special-topic/water-science-school/science/how-much-water-there-earth?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/special-topic/water-science-school/science/how-much-water-there-earth?qt-science_center_objects=0#qt-science_center_objects)

**97.5% Saltwater**

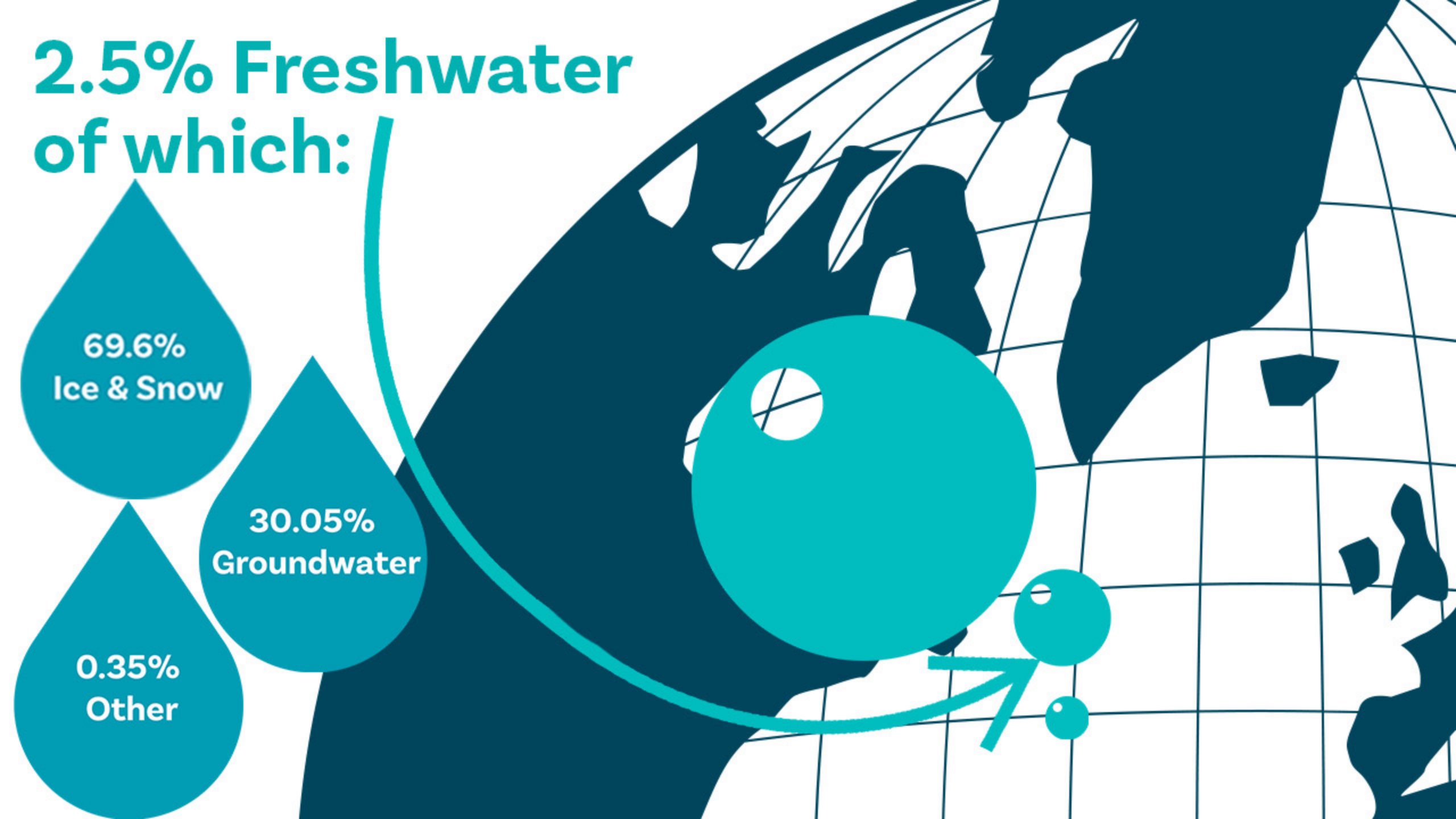


# 2.5% Freshwater of which:

69.6%  
Ice & Snow

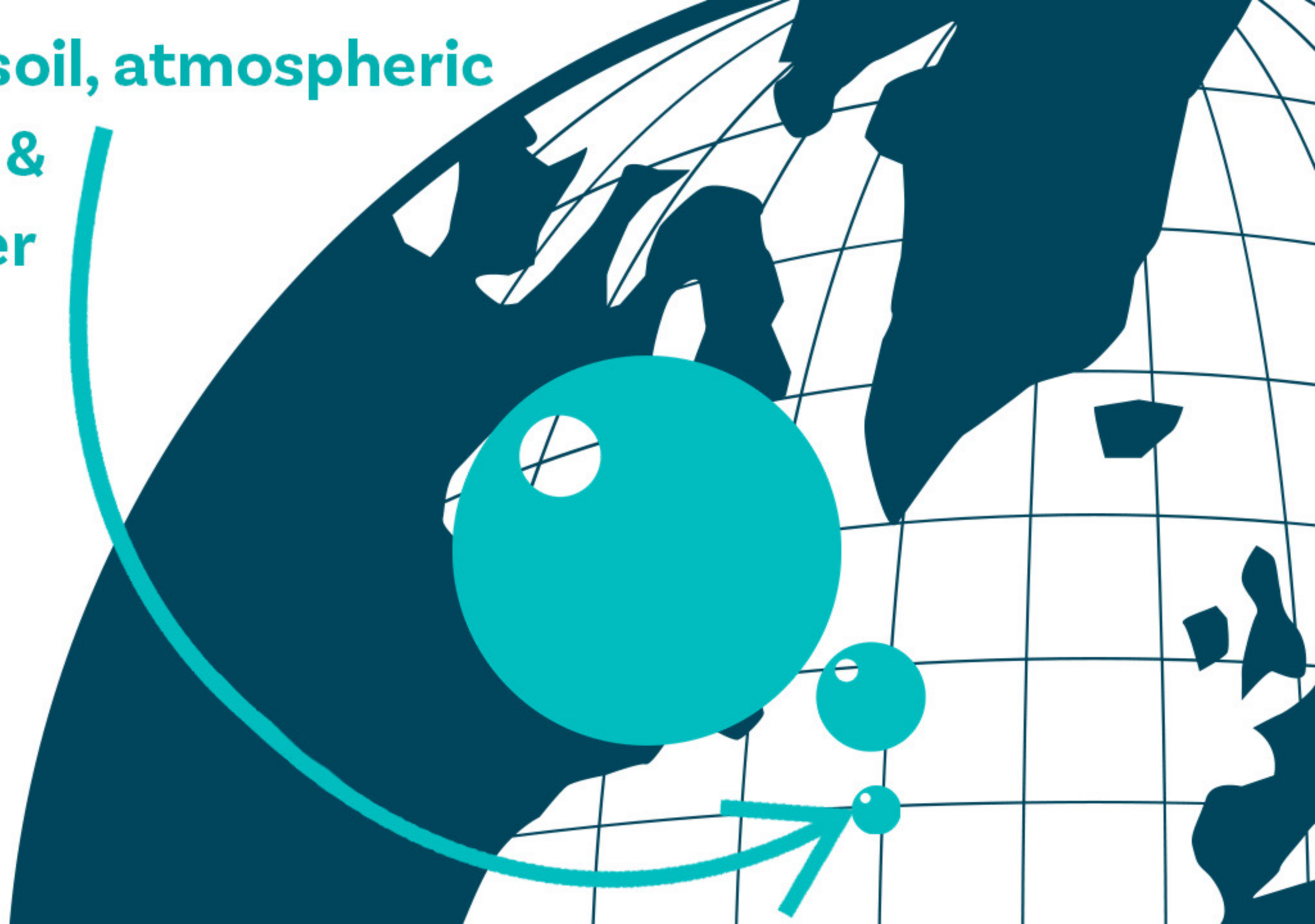
30.05%  
Groundwater

0.35%  
Other



**0.35%** soil, atmospheric  
biological &  
freshwater  
in lakes &  
rivers.

**87%** of  
which is  
in 3 lake  
systems.



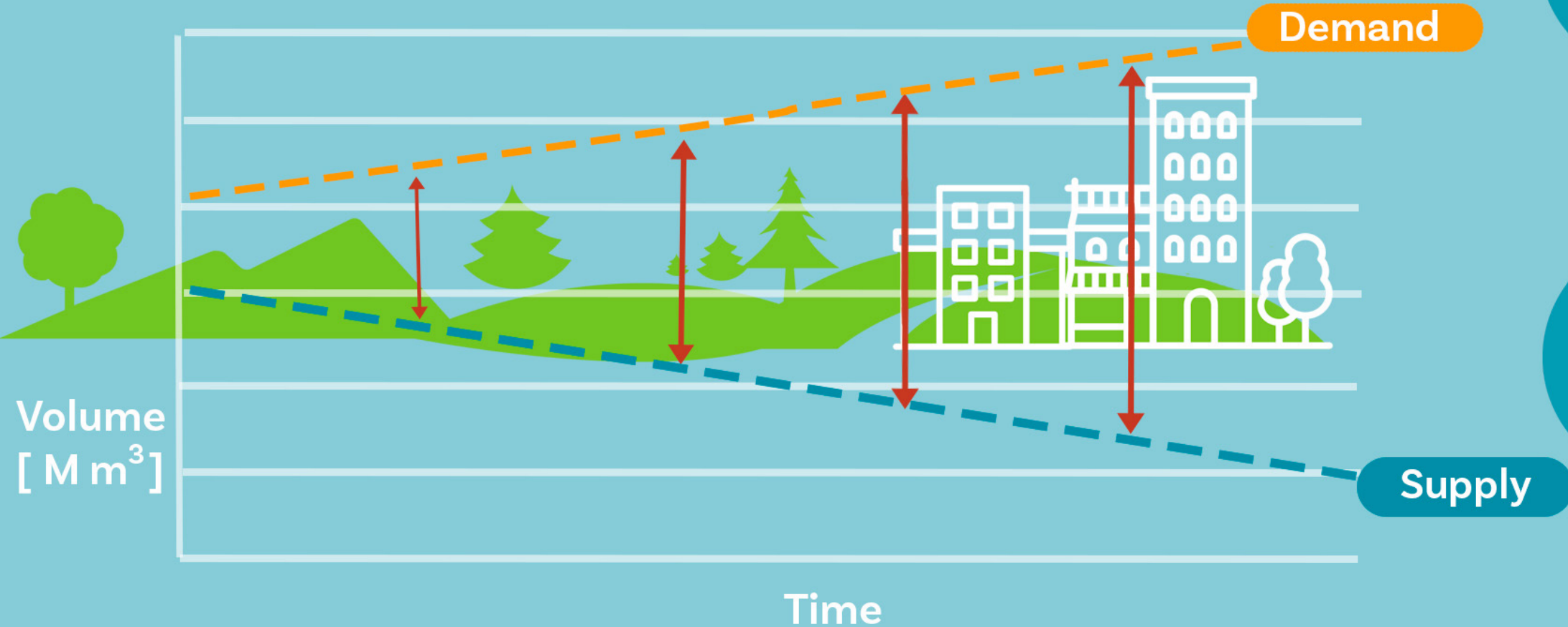


# Above and below ground



# The gap is growing

## Freshwater Demand and Supply



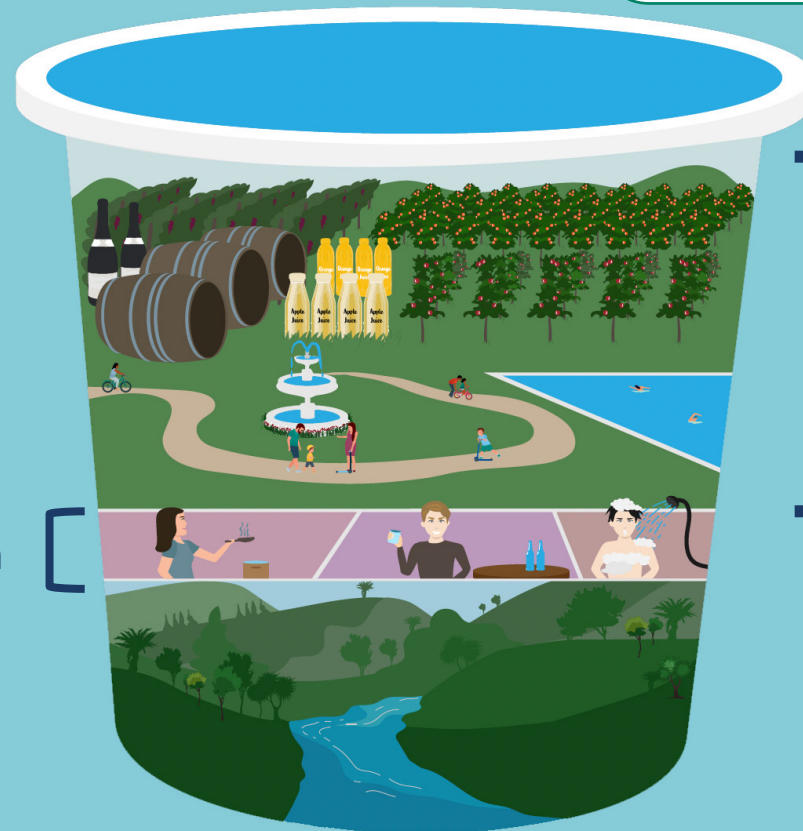
**Demand:**  
What comes out of the rivers & aquifers

**Supply:**  
What goes into the rivers & aquifers

# Te Mana o te Wai: we have to prioritise

## Supply:

- Above ground: Water Storage
- Below ground: Supplementing underground aquifers



85% social, economic & cultural well-being

15% human health

## Demand:

- Industry: agriculture, manufacture
- People: drinking, city water supply
- Environment: waterways, biodiversity

A wide, flat, rocky beach under a cloudy sky with a line of trees in the distance. The foreground is filled with smooth, grey stones of various sizes. In the center, there is a piece of driftwood or a piece of seaweed. The background shows a flat horizon line with a line of trees under a grey, overcast sky.

What challenges do we face in Central Hawke's Bay?

Is part of the answer beneath our feet?



# What is a Managed Aquifer Recharge?

**95% of the  
world's water  
is stored  
underground**

Hinds Mid-Canterbury



**Waipawa river**

**How it could  
work in  
Central  
Hawke's Bay**

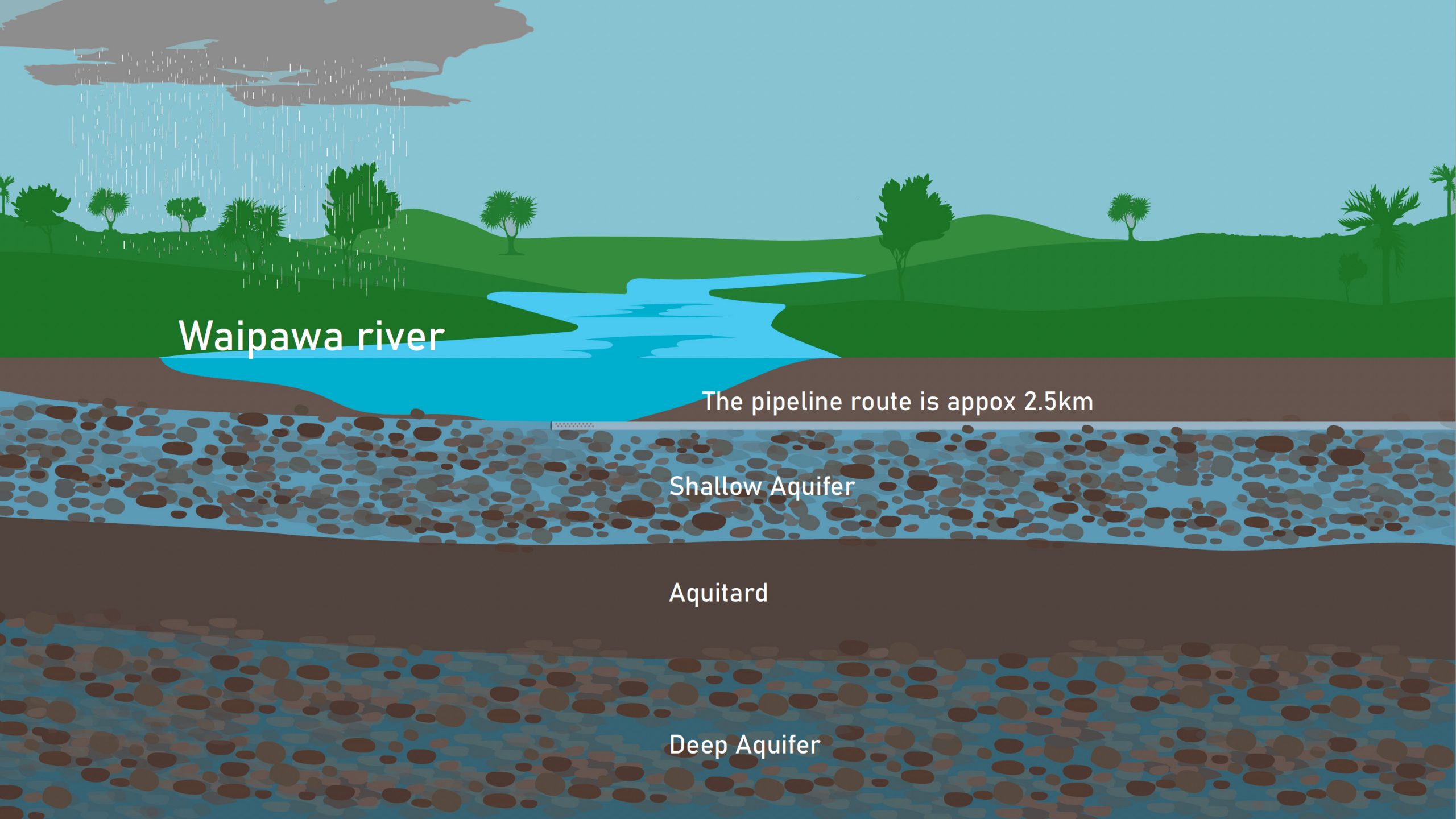


2.5 KM

MAR Pilot Site

Waipawa river





Waipawa river

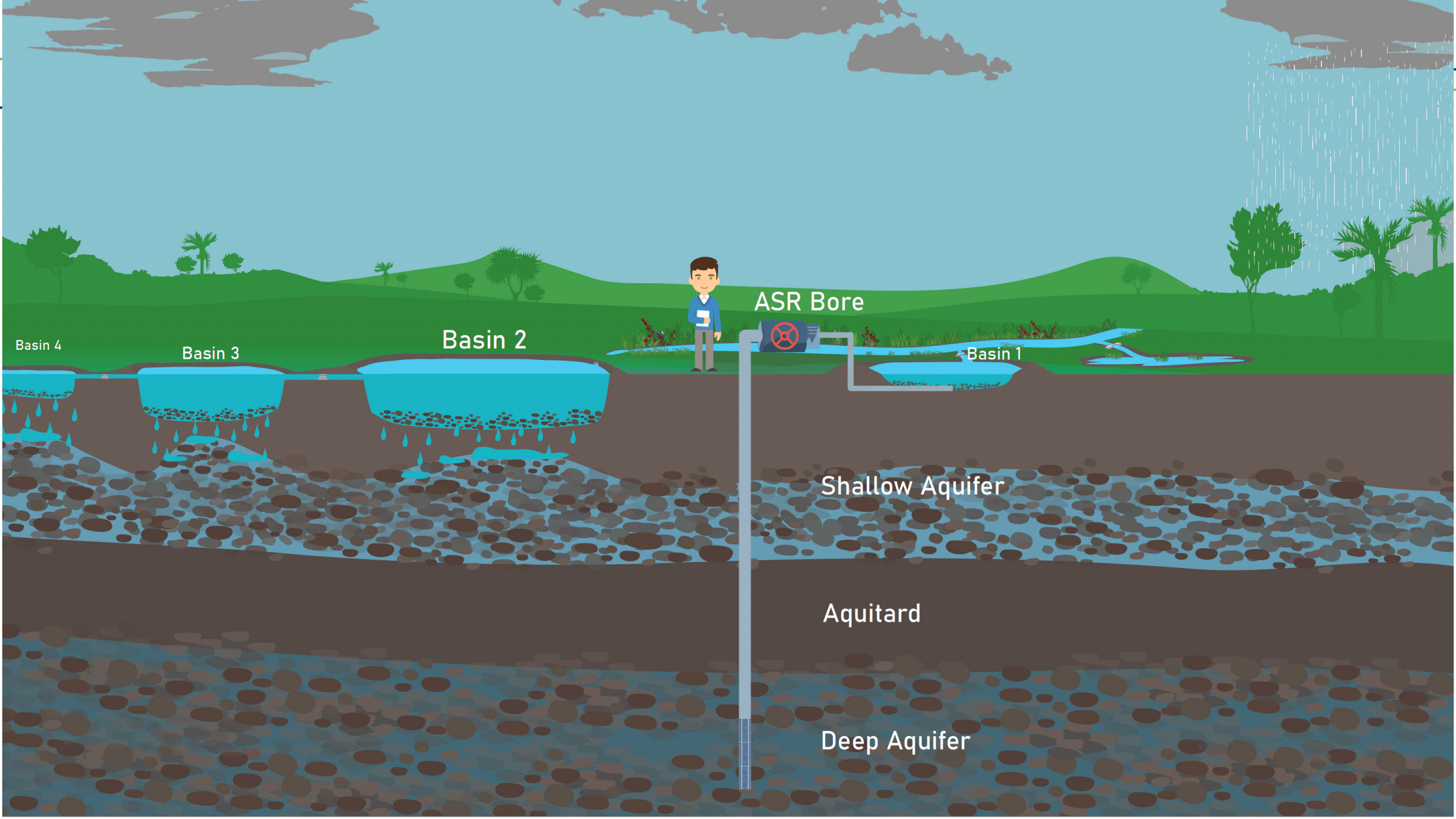
The pipeline route is approx 2.5km

Shallow Aquifer

Aquitard

Deep Aquifer





Where is  
the  
MAR project?



2.5 KM

MAR Pilot Site



Mangaonuku stream

Waipawa river



# Concerns raised and what are doing about them?



This process will need to meet freshwater consent conditions including having no effect on drinking water supplies. Key factor determining the design is water quality. As a pilot, extensive monitoring for this will be in place.



Potential mounding effects are mitigated through the design and location of the site. Effects are to be modelled and addressed as part of the AEE and monitoring is planned with additional shallow and deep monitoring bores adjacent to the site.

# What's the potential for MAR?

## Increased stream levels

We expect to see baseflows increase in our streams/river downgradient of the site becoming more resilient to dry summers

## Protect the Mauri of Waterways

We expect to see the ecosystems retained through our dry summers or even improved over the longer term

## Increased Groundwater Levels

We expect to see an increase in the aquifer levels reducing impacts of our higher water demands over a dry summer

## Improved Water Quality

We expect to improve the water quality in the shallow aquifer improving the health of our environment.

## Irrigation Trial

We expect to demonstrate irrigation efficiencies and different cropping practices to assess sustainable alternatives.

## Improved Knowledge

We expect to learn and share through our monitoring to know what works and how best to use these tools.